

“CLEAN COPY” OF SPECIFICATION CHANGES

Page 1, please amend the FIELD OF THE INVENTION as follows:

This invention relates to electrical power conduction and especially to the manufacturing of a central core used in the manufacturing of superconducting cables. On the external surface area of the core, several superconducting tapes are placed permitting a spiral conformation with a predetermined angle and lay.

Page 2, please amend the paragraphs as follows:

of technological advances and can be integrated as components of equipment or devices. An obvious application is the use of zero resistance properties, in a superconducting state, to the passage of direct current and low power losses in the transmission of electric energy. In present transmission lines, electric energy is lost through heat when current passes through normal conductors. If electric energy is transmitted through superconducting cables, the losses can be eliminated with the subsequent savings in energy costs. This can be applied to any electric components having copper conductors, such as motors, transformers, generators and any equipment involved with electric energy.

Another practical application of these materials is in the field of electronics, taking advantage of the breaker effect of the Josephson junction, which can be used as an element in computers. The magnetic levitation phenomenon in superconductors can be exploited in transportation, for example in the case of the prototype of the train on superconducting rails developed in Japan. Moreover, an important application is in medicine, as a diagnostic tool, where superconducting magnets are used

AB
cont

in magnetic resonance equipment (MRI).

Page 3, please amend the given paragraphs as follows:

Page three, please amend the paragraphs as follows:

at operating temperatures is relatively simple using liquid nitrogen, which reduces the operating costs related to this type of cables.

Currently, HTS materials have some restrictions because of their critical characteristics (T_c , H_c , I_c). Presently, [researches have been] research has focused on increasing the superconducting section to improve current conduction capacity, with a larger number of layers, from 4 to 6 in the case of Germany and the USA, 8 in Denmark, and up to 10 layers in Japan.

The direction of the sense of each tape layer alternates with each layer, with a diameter between conductors ranging from 3.0 cm to 4.0 cm. The superconducting tapes are applied with a lay length (L) from 50 cm to 100 cm (Figure 4) in order to observe the behavior of the cable critical characteristics. In tests conducted on short segments of cables, independently of the design parameters (diameter and lay length), the current distribution between layers is relatively uniform, the superconducting section is totally used and the maximum values of critical current are obtained in the tests. Values of 5800 A - 12000 A have been reached in short segments of cable.